

# Restoring the “Prainha” Ecological Park of the Rio de Janeiro City in Brazil

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The “Prainha” Ecological Park, an Atlantic forest fragment, was created in 1999 with an area of 126.30 hectares and is located in the city of Rio de Janeiro, Rio de Janeiro state, Brazil. Concerning to the past of this coast ‘space little is knew, since there is scarce registration about its historical evolution. However, for a long time, that small amphitheater exhibited (and still maintains) a peculiar rural beauty, savage, bucolic, confined between the sea and the mountain. It is of believing that the area has not maintained unharmed, face to the several economic cycles of last centuries, mainly of the coffee, that affected neighboring areas in some way. Perhaps the access difficulties, before the coming of the seventies, have contributed to protect such ecological patrimony. The deforestation with retreat of noble essences and the atrophic use of the slopes were increased by banana monocultures in the first decades of this century. After deforestation, the highest abandoned lands were gradually covered for secondary vegetation, in an ecological process of vegetable succession. Today they show off a good developed forest formation. But in the short plain coast, the autochthonous vegetation of beach practically doesn’t exist, in consequence to the constant and predatory use after the sixties decade.

The total area of the Park presents different vegetable formations and they reflect that on the soils with different characteristics. Most of the area is constituted by red and yellow podzol soil. In the arboreal stratum are found the “Pau-Brasil” - *Caesalpinia echinata*, the wood red coloring, “Jequitibá” - *Carinianas legalis*, one of the highest, approaching 40 height meters, and several “Figueiras” (*Ficus tomentella*, *F. enormis*, *F. glabra*, *F. gomelleira*, *F. insipida*) among others trees species, They constituted the roof of the forest between 30 and 40 meters. The representatives of the sub-forest, formed by brushes and arbuscle, met copies of rare species that still subsist today in the area. In the composition of the herbaceous stratum there are representatives of “Musáceas” (*Heliconia*). “Marantáceas” (*Calathea*. *Maranta*), “Comelináceas” (*Tradescantia*, *Commellina*), among countless forms of “Gramíneas”, “Bromeliáceas”, “Aráceas” and “Pteridófitas” of the Atlantic forest. Due to local climate, typical of the areas in tropical coast with annual average air temperature of 23°C, there is no species with migratory movements. Most maintains biological activities the whole year.

A wealth of species exists, especially avifauna, but there is more prey than predator. Certainly, we can mention the example of the marsupials case, the “**gamba**” (skunk), that is an easy prey when goes down until the urban zone in search of food.

In this restoring work, accomplished after the creation of the park, the study of the primitive and current vegetable formation in the area took us to a long list of species. The exotic species improperly planted allied with invader species altered the original ecosystem of the area. We found several copies of banana trees (*Musa sp.*), which were eradicated and substituted by copies of typical native species of the area, in a process of Forest Enrichment. For restoration of the “Prainha” Ecological Park, the following species characteristics were adopted: 1 -Fast growth, 2-Ornamental, 3-Fruitfull, 4-Nitrogen Fixing, 5-Melliferous, 6-Noble Wood, 7-Pionner, 8- Deciduas, 9-Humid Lands: A-Occasionally humid: hillside beginning, B-Regularly humid: Gallery forest; C-Constantly Very humid: Swamp; D- Inside the Forest.

Five degraded areas were identified and five mosaics were elaborated. All mosaics had different shapes, because their perimeters were established on the presence of noble trees. Four groups of diverse species were used in this restoring process: fruitful trees for feeding the local fauna, palm trees, ornamental flower trees varying the color of the flowers and the time of flowering, and noble wood trees. The number of species utilized from each group was based on the density of those species occurrence in each mosaic periphery.

The total cost of restoration for all five mosaics was \$8, 112.00(eight thousand hundred and twelve dollars), and a seedling cost of \$26.00(twenty six dollars) with all operations and maintenances prices included. The medium cost for square meter was of \$1,34(one dollar and thirty four cents). In addition, forest enrichment was accomplished in the remaining area. Species such as the palmetto **Juçara** were reintroduced, in order to restore the original Atlantic forest climax. The seedlings were distributed in esteemed spaces of more or less 400 square meters for each group without alignment. After 90 days, 30% of species were replanted, and 16,420 seedlings were utilized for all process. With a total of 12,632-planted seedlings, the “Prainha” park is becoming colonized with noble wood, fruitful and ornamental flower trees. Considering that the restoration work began to be implanted in 1999, the preliminary results are being satisfactory, mainly on the **recomposition** of the original environment.